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ABSTRACT

Prepared by a Provost's Task Force on Assessment of Quality and Outcomes of Undergraduate Education, this report reviews the background of the currently burgeoning "assessment" movement and sets forth principles to guide the University of Arizona's efforts to redefine and reassess the quality and outcomes of its undergraduate programs. It also presents a comprehensive model for assessing undergraduate education and sketches a plan for implementation of this model at Arizona. Part 1 (a framework for assessment) focuses on the following: aims of undergraduate education; a comprehensive approach to assessment (assessment of the institutional environment, student learning and development outcomes, value-added student learning and development, and institutional influences on student learning); a model for assessing undergraduate education; and design principles (multidimensional view of quality, multiple methods of assessment, multiple sources of information, and use of existing data). Part 2 (implementation plan) looks at: transition team; Center for Research on Undergraduate Education; stages of implementation (preliminary assessment and completion of assessment plan, assessment of student outcomes and environmental influences, assessment of the institutional environment, assessment of the value-added student learning and development, and studies on institutional influences on student learning). Appended are: a sample student data record; a time line implementation; and student data record flow. Contains 7 tables and 10 references. (SM)

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Plan for Assessing Undergraduate Education at the University of Arizona

Task Force On Assessment of the Quality and Outcomes of Undergraduate Education

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PLAN FOR ASSESSING UNDERGRADUATE EDUCATION AT THE UNIVERSITY OF ARIZONA

Clifton F. Conrad and colleagues

ABSTRACT

Prepared by a Provost's Task Force on Assessment of Quality and Outcomes of Undergraduate Education, this report reviews the background of the currently burgeoning "assessment" movement and sets forth principles to guide the University of Arizona's efforts to redefine and reassess the quality and outcomes of its undergraduate programs. It also presents a comprehensive model for assessing undergraduate education and sketches a plan for implementation of this model at Arizona.

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student experiences
general education
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program review
formative evaluation
program effectiveness
alumni
institutional environment
student achievement
student development
value-added

PLAN FOR ASSESSING UNDERGRADUATE
EDUCATION AT THE UNIVERSITY OF ARIZONA

Task Force on Assessment of the Quality and Outcomes
of Undergraduate Education

May 15, 1987

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Introduction

During the last several years, quality assessment has emerged as a critical issue confronting American higher education. Given the number of recent reports on undergraduate quality (Boyer, 1987; ECS, 1986; AAC, 1985; NIE, 1984) and the various assessment initiatives across the nation, the current concern with quality clearly seems to represent a major commitment to at once holding higher education accountable and revitalizing the higher learning.

While accountability is important, improvement of student and institutional performance--not simply accountability--is the salient issue facing higher education and the University of Arizona. The challenge is to develop a comprehensive plan for assessing undergraduate education--one in which assessment is viewed as a useful vehicle for enhancing the undergraduate experience. This Task Force proposes not a narrow formula for evaluation but rather a plan to generate significant improvements in the quality of teaching and learning and to foster other important aims of undergraduate education.

The University of Arizona is currently engaged in assessing both programs and students. Program reviews, institutional and professional accreditations, and various reputational studies are carried out at the program level. Student learning is assessed at various points. For example, undergraduates are required to take several tests (Freshman Composition Placement Examination, Upper Division Writing Proficiency Examination, and Mathematics Placement Test) of their writing, composition, and quantitative competencies. Moreover, some programs--such as

Pharmacy--examine students upon completion of courses in the major. Several academic units--including the College of Engineering and Mines --employ post-graduate assessment through such measures as alumni surveys, employer surveys, and employment statistics. But clearly we need to develop a more systematic and comprehensive plan for assessing undergraduate education in addition to these efforts. Most importantly, student and institutional performance should be assessed across the curriculum in ways that lead to improved teaching and learning.

This report is divided into two parts. The first provides a framework for assessment. Beginning with a statement of the aims of undergraduate education, it addresses the need for comprehensive assessment of the quality of the institutional environment, student learning and development outcomes, value-added student learning, and the relationship between various elements of the educational environment and student learning. It also presents a comprehensive model for assessing undergraduate education and offers several principles to guide the assessment design.

The second part of the report sketches a plan for implementation. Given the complexities involved in developing a comprehensive plan, this plan should be viewed as a blueprint. It proposes a transition team as a bridge between the Task Force and the development of a Center for Research on Undergraduate Education, and it recommends a series of stages for implementation over the next several years. The first stage should begin this summer and focus on a preliminary assessment and on completing the assessment plan. The second should assess student outcomes and related institutional influences. The third should

assess the quality of the institutional environment. The fourth should assess value-added student learning and development. The fifth and final stage should study institutional influences on student learning and development.

In the course of preparing this report, members of the committee talked with students, faculty, and administrators about the assessment plan. However, shortness of time did not permit circulation of the plan to various constituencies of the University. The Task Force recommends that the implementation plan be circulated to major constituencies prior to final implementation.

The preparation of this report involved the cooperation and effort of many people. Three individuals deserve special mention for chairing subcommittees of the Task Force: Dr. Richard Kroc, Student Development; Professor Patricia MacCorquodale, General Education; and Professor George Summers, Major. Alton Jamison took major responsibility for coordinating the activities of the subcommittees, prepared the initial draft of the second part of the report, and contributed substantially in a variety of ways. Dr. Kroc, Professor MacCorquodale, Professor Summers, and Professor Charles Davis provided detailed and constructive editorial suggestions--nearly all of which were incorporated into the final draft. Professor Donald Weinstein was an acerbic and unrelenting critic of virtually all that was said or written during the preparation of this document. The thoughtfulness and integrity of his substantive and editorial suggestions--punctuated throughout by good humor--contributed immeasurably to the quality of this document. Finally,

nearly every member of the Task Force made valuable contributions to the preparation of the report.

Clifton F. Conrad
Chair

PART ONE: A FRAMEWORK FOR ASSESSMENT

Aims of Undergraduate Education

A liberal education is the education which gives a man a clear, conscious view of his own opinions and judgment, a truth in developing them, and a force in urging them. It teaches him to see things as they are, go right to the point, to disentangle a skein of thought, to detect what is sophistical, and to discard what is irrelevant. It prepares him to fill any post with credit and to master any subject with facility.

- John Henry Cardinal Newman

A rigorous and coherent undergraduate education should provide students with the knowledge and critical faculties that are increasingly necessary for living intelligently and effectively in a complex and changing world. The knowledge, skills, and habits acquired during the undergraduate years can help to create the foundation for a lifetime commitment to learning, personal development, and social responsibility. The successful graduate carries throughout life those qualities of mind and character that are nurtured by a sound undergraduate experience.

Knowledge, intellectual skills, intellectual habits, and personal growth and development are at the core of the undergraduate experience at the University of Arizona. Elaboration of these aims provides an anchor for assessing the quality and outcomes of undergraduate education at the University.

An undergraduate education should help students acquire both general and specialized knowledge. Knowledge provides the material for inquiry, discourse, reflection, and choice. The educated person is aware of a substantial body of facts, ideas, and theories and has a

critical appreciation of the ways this knowledge is acquired and used. Graduates of the University of Arizona should understand the major branches of knowledge--including the arts and literature, biological and physical sciences, and the social sciences--as well as the assumptions, methods, and vocabularies associated with each of these bodies of knowledge. They should acquire an understanding of, and appreciation for, non-Western as well as Western Civilization. Finally, they should be familiar with the various modes of access to knowledge which can facilitate a lifetime of learning.

An educated person must also acquire specialized knowledge in a particular field of study. Depending on a student's field of study, this knowledge may include noncognitive as well as cognitive knowledge. Specialized knowledge is more than a body of information; it requires that students learn the particular methods and principles of their chosen field, its limits as well as its explanatory power and applications. Mastery of a discipline or field of study not only deepens knowledge but also broadens understanding, strengthens analytic capacities, and prepares people for a life of challenge and accomplishment.

An undergraduate education should cultivate intellectual skills. Various intellectual skills can serve students throughout their lives. Among the most important are the skills of analysis, synthesis, problem-solving, and evaluation--the ability to define the issues in a complex problem, place the issues in their appropriate context, identify the pertinent facts and their relations, examine alternative interpretations, and arrive at sound conclusions. Other indispensable skills are communication, the ability to write, speak, and listen

effectively; effective use of the symbolic and quantitative language of mathematics; and the ability to locate information in libraries and other resources.

An undergraduate education should foster sound intellectual habits or attitudes of mind. Five attitudes--all essential to the wise and humane use of intellectual skills--are especially important. The first is intellectual integrity, including a respect for evidence, reason, and the contingent nature of truth. The second, open-mindedness, refers to a respect for different views and the ability to suspend judgment until evidence is available or until the bases for these differences are understood. The third--motivation--embraces such personal characteristics as initiative, curiosity, and an appetite for learning. The fourth, aesthetic sensibility, refers to a discriminating appreciation for the place of the arts and literature in civilization and an awareness of their potential for enrichment of human experience. The final habit, intellectual commitment, refers to the willingness to pursue a line of inquiry to its logical conclusion--no matter how uncomfortable the conclusion.

An undergraduate education should foster student development. In keeping with the aim of the development of the whole person, an undergraduate education should include identity formation, development of humane values, ethical development, and physical development. These aspects of undergraduate education should not be divorced from intellectual skills; rather, a well-rounded undergraduate education represents an integration of reason and emotion, intellectual and ethical development, and the development of broadly humane values and a sense

of responsibility for one's own mental and physical well-being. Moreover, the undergraduate experience should help to cultivate in students a sense of social responsibility--including a strong sense of civic responsibility and the interpersonal skills necessary to interact effectively with others. Finally, while undergraduate education should transcend the narrow vocational rationale, it must consciously aim to prepare students for fulfilling careers.

In summary, this statement provides the aims and principles that inform undergraduate education at the University of Arizona. With this knowledge and these skills, habits, and qualities, graduates of the University of Arizona should be able to realize more fully their potential because they chose to attend this institution.

A Comprehensive Approach to Assessment

Quality . . . you know what it is, yet you don't know what it is. But that's self-contradictory. But some things are better than others, that is, they have more quality. But when you try to say what the quality is, apart from the things that have it, it all goes poof. There's nothing to talk about. But if you can't say what Quality is, how do you know what it is, or do you know that it even exists? If no one knows what it is, then for all practical purposes it doesn't exist at all. But for all practical purposes it really does exist. What the . . . is quality? What is it?

- Robert Pirsig

The realization that quality is elusive--a "moving target" in Pirsig's words--should condition any design for assessment. A comprehensive plan of assessment should examine not only student learning and development outcomes but also the quality of the educational environment, value-added student learning, and relationships among the various elements in the institutional environment and student learning.

Each of these four approaches to assessment offers a useful perspective for partially evaluating undergraduate education. Each, however, has some limitations. We will give our reasons for including each approach and discuss its limitations to lay the foundation for a comprehensive design that embraces all four.

Assessment of the Institutional Environment: General Education, Major, and the Extracurriculum

Assessment must examine the quality of the institutional environment--notably the three major components of the undergraduate experience: general/liberal education, the major, and the extracurriculum. To what extent is the University of Arizona providing a rich

educational environment, one which is likely to foster student learning and development consonant with the aims we have stated? Which features of the institutional environment are most likely to promote student learning and development? Which are least likely?

The need to evaluate the institutional environment scarcely requires justification: if assessment is to be useful it must examine all components and features of the undergraduate experience. Yet, it is a formidable task to assess the subtleties and nuances of the environment, for the institutional environment is diffuse and amorphous, which makes it difficult to reach firm conclusions. Moreover, it is difficult to know how the environment affects student learning and development. A robust institutional environment does not guarantee student learning and development.

Assessment of Student Learning and Development Outcomes

Assessment of undergraduate education must also address student learning outcomes--including outcomes related to the areas of general/liberal education, specialization/major, and student development as well as unintended outcomes. In the short run, to what extent have students acquired the knowledge, skills, and habits--and reached the level of personal development--expected of graduates of this institution? In the long run, what are the effects and consequences of graduation from the University of Arizona?

While the outcomes approach has considerable merit, it is not without some serious limitations. A major difficulty is that outcomes measures do not necessarily reflect institutional impact or

effectiveness. As Astin puts it, "Most output measures depend more on the quality of students admitted to the institution than on the functioning of the institution or the quality of its program" (1980, p. 3). In other words, a recurring problem with the outcomes approach is the difficulty of isolating the institution's contribution. Moreover, many important outcomes are difficult to measure. For example, higher-order thinking skills and such intellectual habits as open-mindedness and commitment are difficult to measure, though they can be evaluated through such methods as interviews and observation. Finally, measuring outcomes alone does not provide a firm basis (except in the most general terms) for improving the educational environment--the quality of teaching and learning. Outcomes measures must be linked to various features of the institutional environment if the results are to provide a springboard for improving the quality of undergraduate education.

Assessment of Value-Added Student Learning and Development

Given the limitations of the student outcomes approach, assessment must also focus on institutional impact or, as the economists prefer, "value-added." Since the major purpose of undergraduate education is to facilitate students' intellectual, personal, and career development, the assessment design includes value-added student learning. What has been the impact of the institutional environment on student learning and development?

This approach has several limitations. Like the outcomes approach, the value-added approach requires that outcomes be carefully measured. In the value-added approach, the measurement problem is

compounded since various student characteristics must be measured at entry to the University as well as following graduation. Moreover, value-added assessment can be expensive and time consuming. In addition, it is no easy matter to determine institutional impact on student learning and development since other noninstitutional factors--such as maturation, travel experiences, and summer employment--are also involved. Finally, exclusive reliance on value-added assessment does not provide a solid foundation for improving the educational environment. Astin, the first major proponent of value-added assessment in higher education, warns that value-added "studies frequently take a long time to produce useful results and . . . the results are often so general that they are difficult for individual institutions to apply to their particular problems" (1980, pp. 4-5).

Assessment of Institutional Influences on Student Learning

The movement toward assessment as a vehicle of accountability can obscure the need to use it for improving the quality of the institutional environment. The assessment design must examine relationships between the overall institutional environment and student learning. What are the connections between the institutional environment and student learning and development?

There are several ways to investigate these connections. First, through surveys and interviews, students can be asked to discuss their involvement in campus life and to isolate those features of the environment that have contributed most and least to their learning. Second, the University can use statistical methods to look for

relationships among student backgrounds, campus environment, and various learning outcomes. Third, faculty and professional staff can conduct studies of institutional impact that systematically control for various influences on student learning and, in turn, isolate those institutional characteristics that can be modified to facilitate student learning and development. Fourth, ethnographic techniques can be used to produce developmental case studies, rich descriptions of students' progress through the University.

Like value-added assessment, studies of the factors affecting student learning are fraught with measurement problems. In particular, such studies require longitudinal designs--as contrasted with cross-sectional designs--that will not yield useful findings until an initial cadre of students is tracked through its undergraduate years. In the short run, the assessment design must ask students (and perhaps faculty) to make connections between the undergraduate experience and student learning. In the long run, the assessment design must include studies that attempt to link the environment with student learning. In turn, the University will have a more solid foundation for improving the quality of undergraduate teaching and learning.

A Model for Assessing Undergraduate Education

Figure 1 displays our comprehensive model for assessing undergraduate education at the University of Arizona. In order to assess student progress and growth, or "value-added" student learning, the assessment model indicates that baseline measures of entering students must be established. Further, the model indicates that the three major components of the undergraduate experience (general/liberal education, the major, and the extracurriculum) should be examined in order to evaluate the quality of the institutional environment. Various elements of the educational environment that are associated with program and institutional quality are also identified in Figure 1. These elements are clustered under the headings of climate, resources for learning, faculty, students, and curriculum. They are not intended to be exhaustive; rather, they are important factors to be considered in the assessment of general/liberal education, the major, and the extracurriculum.

Insert Figure 1 about here

Figure 1 also displays the student outcomes that are to be assessed. Under general/liberal education, student outcomes are clustered under breadth of knowledge, intellectual skills, and intellectual habits. Under major/specialization, outcomes are grouped under cognitive knowledge and skills, noncognitive knowledge and skills, and process effectiveness and efficiency. Finally, under student

A MODEL FOR ASSESSING UNDERGRADUATE EDUCATION

ENTERING STUDENTS

Knowledge
Intellectual Skills
Intellectual Habits
Values
Attitudes
Demographics

COMPONENTS OF THE
UNDERGRADUATE EXPERIENCE

General Education
Major
Extracurriculum

ELEMENTS OF INSTITUTIONAL ENVIRONMENT

Climate

1. Student-Faculty Interaction
2. Student and Faculty Morale
3. Cultural, Social and Recreational Opportunities

Resources for Learning

1. Student Support Services
2. Libraries
3. Laboratory Equipment and Facilities
4. Computer Facilities
5. Campus and Classroom Environments

Faculty

1. Teaching Effectiveness
2. Advising
3. Participation in Programs for Student Development and Welfare

Students

1. Student Effort
2. Peer Interaction
3. Student Participation in Cocurricular Activities

Curriculum

1. Range and Depth of Course and Program Offerings
2. Program Development and Leadership
3. Individualized Opportunities (such as internships)
4. Program Integration (extent to which program is connected to other programs)

STUDENT OUTCOMES

General/Liberal Education Outcomes

- A. Breadth of Knowledge
 1. Arts and Literature
 2. Western Civilization
 3. Biological and Physical Sciences
 4. Individuals, Societies, and Institutions
 5. Non-Western Civilizations
- B. Intellectual Skills
 1. Higher Order Thinking Skills (Analysis, Synthesis, Evaluation, Problem-Solving)
 2. Communication Skills (Writing, Speaking, and Listening Effectively)
 3. Quantitative Skills (Mathematical and Computational)
 4. Library & Informational Research Skills
- C. Intellectual Habits
 1. Intellectual Integrity (Respect for Evidence, Respect for Reason, Respect for Contingent Nature of Truth)
 2. Open-Mindedness (Willingness to Suspend Judgment, Tolerance for Ambiguity, Respect for Others' Views)
 3. Intellectual Motivation (Curiosity, Initiative, Appetite for Learning)
 4. Aesthetic Sensibility (Discriminating Appreciation for the Fine Arts, Literature, and Natural Beauty)
 5. Intellectual Commitment

Major/Specialization Outcomes

- A. Cognitive Knowledge and Skills
- B. Noncognitive Knowledge and Skills
- C. Process Effectiveness and Efficiency

Student Development Outcomes

- A. Personal Growth and Development
 1. Identity Formation (Autonomous, Self-Aware, Independent, Motivated)
 2. Development of Humane Values and Capacity for Commitment (Empathy, Compassion, Trust, Non-Exploitativeness, Respect for Dignity of Others, Appreciation of Cultural and Intellectual Diversity)
 3. Ethical Development (An Internalized But Not Dogmatic Set of Values and Moral Principles)
 4. Physical Development (Sense of Personal Responsibility for Wellness)
- B. Social Responsibility
 1. Interpersonal Skills (Capacity to Develop and Nurture Relationships and to Interact Effectively Within Group Situations)
 2. Sense of Civic Responsibility (Social Consciousness and Social Responsibility)
- C. Career Preparation
 1. Personally Fulfilling Career (Satisfaction)
 2. Preparedness (Knowledge and Skills) for Career

development, outcomes are grouped under personal growth and development, social responsibility, and career preparation. The reader should keep in mind that assessment should investigate the connections between the educational environment and student outcomes.

In summary, the Task Force proposes that the model displayed here should guide the assessment of undergraduate education at the University of Arizona. The Task Force also recognizes that it will take time to implement the model fully. The implementation plan described in the second part of this report provides a timetable for implementing the various components of the model.

Design Principles

Multidimensional View of Quality

In many assessments of higher education, quality has been viewed as synonymous with faculty quality or student quality or even with the amount of resources available. Such unidimensional views fail to recognize that quality has multiple dimensions. As displayed in Figure 1, our assessment design encompasses a multidimensional view of quality; the clusters of elements identified in the institutional environment include climate, resources, faculty, students, and the curriculum.

Multiple Methods of Assessment

Any design for assessment must consider alternative methods. The conventional approach has been to use quantitative techniques, such as standardized tests. In contrast, qualitative approaches have surfaced recently with the rise of naturalistic strategies. In general, quantitative assessments tend to emphasize unidimensional perspectives; qualitative assessments emphasize multidimensional perspectives (Kuh, 1981). An "encompassing approach to quality assessment must systematically recognize the validities and reliabilities, the limitations and strengths, the similarities and differences, the weight and significance of contrasting methods of inquiry and kinds and sources information represented by the two methodological approaches" (Conrad and Pratt, 1985, p. 616). Both quantitative and qualitative methodologies

have a place on the continuum of gathering information, and each should be incorporated into the design for assessment.

We recommend that a range of quantitative and qualitative methods be used for assessment. Table 1 provides a comparison of various quantitative and qualitative approaches to assessment. While the Task Force recognizes that it would be impossible to employ all or even most of the techniques and sources of information displayed in Table 1, we strongly recommend that the assessment design incorporate both quantitative and qualitative approaches.

Insert Table 1 about here

Multiple Sources of Information

The Task Force further recommends that a variety of sources of information be employed in the assessment design. Table 1 links the various sources of information with quantitative and qualitative approaches, respectively. Table 2 identifies various sources of information that can be used in the baseline assessment of entering students. Table 3 identifies possible sources of information for assessing various elements in the institutional environment as well as for studying relations between elements in the environment and student learning. Table 4 identifies possible sources of information for assessing student outcomes. These three tables suggest the variety of sources of information that can be used in the assessment design. Given constraints of time and resources, only selected sources can be used in the final assessment plan. However, the Task Force recommends

TABLE 1
COMPARISON OF QUANTITATIVE AND QUALITATIVE
APPROACHES TO ASSESSMENT

	<u>Quantitative</u>	<u>Qualitative</u>
Purpose of Assessment:	Summative Evaluation (decision making and accountability)	Formative Evaluation (program involvement)
Orientation and Emphases:	Hypothetic-Deductive Verification Objective Scientific Quantification Fixed Design Statistical Analysis	Inductive Discovery Subjective Naturalistic Description and Interpretation Emergent Design Qualitative Analysis
Methodological Approach:	Scientific Method	Naturalistic Inquiry Ethnography Participant Observation Grounded Theory Ethnomethodology
Sources of Information:	Surveys Tests Records Unobtrusive Indicators (objective measures)	Observation Interviews Documents Records Unobtrusive Indicators Student Portfolios

Source: Adapted from Conrad and Wilson, 1985, p. 33.

that the final selection of sources of information include data from multiple perspectives--including students, faculty, administrators, alumni, and, if possible, employers.

Insert Tables 2, 3, and 4 about here

Use of Existing Data

The University collects data on students and programs that could be incorporated into the assessment plan. Before developing new assessment strategies, relevant data should be taken from existing campus records and data bases. This information provides a solid basis for longitudinal comparisons.

TABLE 2

ENTERING STUDENTS AND POSSIBLE SOURCES OF INFORMATION

POSSIBLE SOURCES OF INFORMATION

	<u>Observation</u>	<u>Student Interviews</u>	<u>Faculty/ Admin./ Staff Interviews</u>	<u>Student Portfolios</u>	<u>Faculty/ Admin./ Student Surveys</u>	<u>Records</u>	<u>Unobtrusive Indicators</u>	<u>Tests</u>
ENTERING STUDENTS								
Knowledge	X	X	X	X	X	X	X	X
Intellectual Skills	X	X	X	X	X	X	X	X
Intellectual Habits	X	X	X	X	X		X	X
Values	X	X	X	X	X	X	X	X
Attitudes	X	X	X	X	X	X	X	X
Demographics		X			X	X	X	

TABLE 3
ELEMENTS OF INSTITUTIONAL QUALITY AND POSSIBLE SOURCES OF INFORMATION

ELEMENTS OF ENVIRONMENTAL QUALITY	POSSIBLE SOURCES OF INFORMATION								
	Observation	Student Interviews	Faculty/ Admin./ Staff Interviews	Alumni Interviews	Student Portfolios	Staff/ Faculty/ Admin./ Student Surveys	Alumni Surveys	Records	Unobtrusive Indicators
<u>Climate</u>									
1. Student-Faculty Interaction	X	X	X	X	X	X	X		X
2. Student and Faculty Morale	X	X	X	X	X	X	X		X
3. Cultural, Social, and Recreational Opportunities	X	X	X	X	X	X	X	X	X
<u>Resources for Learning</u>									
1. Student Support Services	X	X	X	X	X	X	X	X	X
2. Libraries	X	X	X	X	X	X	X	X	X
3. Laboratory Equipment and Facilities	X	X	X	X	X	X	X	X	X
4. Computer Facilities	X	X	X	X	X	X	X	X	X
5. Campus and Classroom Environments	X	X	X	X	X	X	X	X	X
<u>Faculty</u>									
1. Teaching Effectiveness	X	X	X	X	X	X	X	X	X
2. Advising	X	X	X	X	X	X	X	X	X
3. Participation in Programs for Student Development and Welfare	X	X	X	X	X	X	X		X
<u>Students</u>									
1. Student Effort	X	X	X	X	X	X	X		X
2. Peer Interaction	X	X	X	X	X	X	X		X
3. Student Participation in Cocurricular Activities	X	X	X	X	X	X	X		X
<u>Curriculum</u>									
1. Range and Depth of Course and Program Offerings	X	X	X	X	X	X		X	X
2. Program Development and Leadership	X	X	X	X	X	X	X		X
3. Individualized Opportunities (such as Internships)	X	X	X	X	X	X	X		X
4. Program Integration (extent to which program is connected to other programs)	X	X	X	X	X	X	X		X

TABLE 4

STUDENT OUTCOMES AND POSSIBLE SOURCES OF INFORMATION

STUDENT OUTCOMES

POSSIBLE SOURCES OF INFORMATION

	Observation	Student Interviews	Faculty/ Admin./ Staff Interviews	Alumni Interviews	Employer Interviews	Student Portfolios	Staff/ Faculty/ Admin./ Student Surveys	Alumni Surveys	Records	Unobtrusive Indicators	Tests
<u>General/Liberal Education Outcomes</u>											
--Breadth of Knowledge	X	X	X	X	X	X	X	X	X	X	X
--Intellectual Skills	X	X	X	X	X	X	X	X	X	X	X
--Intellectual Habits	X	X	X	X	X	X	X	X	X	X	X
<u>Major/Specializa- tion Outcomes</u>											
--Cognitive Knowledge and Skills	X	X	X	X	X	X	X	X	X	X	X
--Non-Cognitive Knowledge and Skills	X	X	X	X	X	X	X	X	X	X	X
--Process Effectiveness and Efficiency	X	X	X	X		X	X	X	X	X	X
<u>Student Development Outcomes</u>											
--Personal Growth and Development	X	X	X	X	X	X	X	X	X	X	X
--Social Responsibility	X	X	X	X	X	X	X	X	X	X	X
--Career Preparation	X	X		X	X			X	X	X	
<u>Unintended Outcomes</u>											

PART TWO: IMPLEMENTATION PLAN

Assessing the complexities of undergraduate education requires an implementation plan that is responsive to new developments, changing issues, and possible fluctuations in funding. The Task Force recommends that the first two years be an experimental period during which appropriate modes of assessment are adopted and refined.

During the first six months of the two-year period, a transition team will continue the work initiated by the Task Force. The transition team will then report its findings and recommendations to a newly established Center for Research on Undergraduate Education. The Center will implement the plan, evaluating and modifying the design as necessary. Full implementation of the plan may take up to five years.

Transition Team

The Task Force proposes the formation of a transition team after May 15, 1987, when we complete our assignment. The transition team will provide continuity of activity until January 1, 1988, the recommended date for establishment of the Center. Selected from faculty, staff, and students, the 8-10 members will (1) provide a link between the Task Force and the Center, (2) contact faculty and staff in departments and colleges to complete the inventory of assessment programs presently conducted at the University, (3) provide assistance to those colleges and departments developing or revising assessment designs for their respective majors and specializations, (4) conduct a preliminary study aimed at identifying elements in the plan that may require modification, and (5) communicate the principles and the plan for implementing them to major campus and external constituencies of

the University and carefully consider their comments and recommendations.

Center for Research on Undergraduate Education

In order to respond to the concerns of major campus constituencies, complete the task of refining the assessment design, collect data, monitor the implementation of the plan, and interpret and communicate the assessment results, the Task Force recommends the establishment of a Center for Research on Undergraduate Education by January 1, 1988. The Center will be governed by a steering committee made up of 10-12 faculty, academic/professionals, students, and staff persons granted release time to participate. The Steering Committee will oversee the operation of the Center according to the aims and principles of this report. A full-time director will serve as advisor to the Committee and act as executive administrator for the Center. Assisting the director will be faculty and staff persons granted release time to conduct studies and coordinate the activities of the Center. Other than a small clerical support staff, we do not anticipate the need for a full-time staff.

The Center will have several responsibilities:

1. Refining and revising the overall assessment plan and monitoring its implementation.
2. Designing and monitoring all aspects of the implementation plan related to assessing general education and student development.

3. Consulting with Colleges and departments regarding their specific plans for assessing the major/specialization.*
4. Serving as a clearinghouse by assembling relevant existing data collected by other units within the University.
5. Collecting new information, such as by conducting an alumni survey and student interviews.
6. Communicating assessment findings to on- and off-campus constituencies as appropriate.

Stages of Implementation

Stage I: Preliminary Assessment and Completion of Assessment Plan

Following the formation of the transition team, a preliminary study of a random sample of approximately 50 students will be conducted. This study will apply the assessment plan to the sample to test and refine the design by identifying potential information gaps, procedural difficulties, and structural inconsistencies. The preliminary study will provide the transition team with insights regarding the applicability of the plan which, in turn, will be conveyed to the Center when it is established.

The transition team will assemble all demographic, ability, achievement, and survey data available from existing records to

*In some colleges, such as Arts and Sciences, departments are likely to be the organizational units for assessment purposes. However, in professional colleges, such as Engineering and Business and Public Administration, the centrality of the college as a focal point for assessment may be as important as any department within the college. In light of this diversity, the unit for assessment may vary by college --depending on the needs of each. The Director of the Center for Research on Undergraduate Education will work with departments and colleges to determine the appropriate reporting unit in each case for the majors under their jurisdiction.

construct a student data record for each student included in the preliminary study. A sample student data record is appended (Appendix A) to suggest possible information to consider. Standardized tests and surveys will be examined and selected for administration to, and evaluation by, the participating students. The Task Force recommends that the transition team obtain and administer the ACT COMP test to the sample of students.

The preliminary study will interview students, not only to determine which outcomes identified in the plan can be readily assessed using available information and which require further instrumentation but also to test the design and feasibility of the plan. In addition, information from the transition team will also make it possible to sketch a preliminary profile of the graduating student at the University of Arizona. Administrators, faculty, students and other concerned constituencies will thus have a tentative foundation for judging the quality of undergraduate education at the University.

Stage I, then, will be an interim period during which the transition team will complete the inventory of existing assessment methods and available outcomes measures, conduct a preliminary study of a small sample of students, further refine the assessment plan, and convey findings and recommendations to the incipient Center.

Stage II: Assessment of Student Outcomes and
Environmental Influences

As initial projects for the Center, the Task Force recommends the following adjuncts to currently available information on student outcomes. A recommended timeline is appended (Appendix B).

1. Senior Projects Course. Seniors will be required to successfully complete a one-credit, pass-fail course in their major as a requirement for graduation. Students will participate in various projects and activities which demonstrate competencies in the general education, major or specialization, and student development areas-- including an essay, an inventory, and (for a sample of students) the ACT COMP exam.

2. Senior Essay. This component of the Senior Projects Course will require seniors to write on a question posed and evaluated by faculty members in the major. Essays will be evaluated for their demonstration of the cognitive and noncognitive expectancies established by each major or specialization. Following the evaluation for the major, anonymous samples of student essays will be forwarded to the Center for evaluation of general education and student development outcomes.

3. Senior Inventory. As part of the senior projects course or the senior check process, students will be required to file a locally developed senior inventory in which they identify their general education, major, and student development outcomes. The inventory might include a checklist of activities and services such as the library, theater, art exhibits, and honors convocations attended and might gather information on books read, discussions or other interactions with faculty, computer usage, attitude change, strengths and weaknesses of the institution and major department, and attitudes toward other cultures, gender relations, and minorities. The self-report inventory would provide student feedback to curriculum and

program planners. The inventory would also communicate our expectations to entering students, providing a guide and activities checklist for the student and the academic advisor during the undergraduate career.

4. Senior Interviews. A small sample of seniors (1-2 percent) will be selected to participate in 2-3 hour interviews designed to elicit information difficult to obtain from other sources--such as the quality of faculty-student interactions; the quality of library usage; or involvement in educational, social, and cultural activities. Interviews are also likely to reveal unanticipated issues and unintended outcomes and to provide validation for other findings.

5. ACT COMP Test. The COMP test provides a vehicle for evaluating students' competencies in general education and student development. We recommend that the COMP be pilot tested during the transition period and that the COMP, or a similar test, be administered to a sample of students participating in the senior projects course.

6. Alumni Survey. Since many of the benefits of undergraduate education are not realized until some time after graduation, an alumni survey will be administered to graduates. An appropriate deadline for a pilot survey would be July 1, 1988.

7. Employer Survey. Undergraduate education must include preparation for an occupation or profession. An employer survey will provide information regarding the needs of employers and the adequacy of undergraduate preparation for meeting those needs. We recommend that an employer survey be developed and a pilot administration conducted by January 1, 1989.

To assess the outcomes in the three areas of general/liberal education, the major, and student development, the Task Force in Tables 5, 6, and 7 poses research questions which focus on major outcomes within each area, identifies relevant domains of information, and suggests primary and secondary sources of information.

Insert Tables 5, 6, and 7 about here

In summary, in Stage II the Center accepts and evaluates the information and recommendations forwarded by the transition team, addresses the research questions posed regarding student outcomes, assists colleges and departments in designing assessment programs for their majors and specializations, and completes the assessment design for general education and student development. As the Center moves toward completion of the tasks outlined in Stage II, the Task Force strongly recommends establishment of a Senior Projects Course, the use of a senior inventory, senior interviews, a standardized test such as the ACT COMP, and the development and use of alumni and employer surveys.

Stage III: Assessment of the Institutional Environment

Although assessing the educational environment is proposed as Stage III, much of the information pertinent to assessing the various elements of the institutional environment is readily available and will be collected as activities are conducted during Stages I (the transition phase) and II (outcomes assessment). Stage III is the period in which the Center completes information collection and analyzes all

TABLE 5

General/Liberal Education Outcomes

A. Breadth of Knowledge

1. Arts and Literature. To what extent are students aware of the processes of visual, performing, and literary creativity and the significance of these artistic works in cultural contexts?

Domains of information: performing arts, history of art and music, literature

Primary sources of information: ACT COMP test, student records

Secondary sources of information: student inventory, student interviews

2. Western Civilization. To what extent do students understand the collective heritage of ideas, values, and literary and artistic expressions of Western civilization and how that heritage adapts to social, political, scientific, and economic changes?

Domains of information: literature, philosophy, history, the arts philosophy, the sciences

Primary sources of information: ACT COMP test, student records

Secondary sources of information: student inventory, student interviews

3. Biological and Physical Sciences. To what extent do students know the language and practice of science, the methods of hypothesis testing, and the logic of theory development?

Domains of information: biological sciences, physical sciences, laboratory experiences

Primary sources of information: ACT COMP test, student records

Secondary sources of information: student inventory, student interviews

4. Individuals, Societies, and Institutions. To what extent have students systematically examined individual and collective behavior and explored the basic concepts and theories used to analyze personal, social, cultural, political, philosophical, religious, and scientific issues?

TABLE 5, continued

Domains of information: social and behavioral sciences, ethnic and gender studies

Primary sources of information: ACT COMP test, student records

Secondary sources of information: student inventory, student interviews

5. Non-Western Civilization. To what extent do students understand the values, traditions, and development of Non-Western Civilizations and their relationships to Western Civilizations?

Domains of information: Non-Western Civilizations in pre-Columbian New World, Africa, Asia, and the Middle East

Primary sources of information: ACT COMP test, student records

Secondary sources of information: student inventory, student interviews

B. Intellectual Skills

1. Higher Order Thinking Skills. To what extent can students use reasoning and analysis to construct and evaluate formal and informal arguments?

Domains of information: analysis, synthesis, evaluation, problem-solving

Primary sources of information: writing proficiency exam, senior essay

Secondary sources of information: student records, alumni survey

2. Communication Skills. To what extent can students communicate their ideas to others?

Domains of information: writing, speaking, listening

Primary sources of information: writing proficiency exam, senior essay

Secondary sources of information: student records, foreign language proficiency

3. Quantitative Skills. To what extent are students able to reason mathematically and perform basic computations?

TABLE 5, continued

Domains of information: mathematic reasoning, computation, computer literacy

Primary sources of information: math placement exam, student records

Secondary sources of information: GREs, alumni and employer surveys

4. Library and Informational Research Skills. To what extent can students use the library to find information?

Domains of information: familiarity with library resources and ability to locate useful information

Primary sources of information: senior essay

Secondary sources of information: student records

C. Intellectual Habits

1. Intellectual Integrity. To what extent have students developed habits of intellectual honesty?

Domains of information: respect for evidence, respect for reason, respect for contingent nature of truth

Primary sources of information: student interviews

Secondary sources of information: senior essay

2. Open-Mindedness. To what extent are students open-minded?

Domains of information: willingness to suspend judgment, tolerance for ambiguity, respect for others' views

Primary sources of information: student interviews

Secondary sources of information: senior essay

3. Intellectual Motivation and Commitment. To what extent have students developed a lifelong approach to learning?

Domains of information: curiosity, initiative, appetite for learning

Primary sources of information: student inventory, student interviews

Secondary sources of information: senior essay, alumni interviews

TABLE 5. continued

4. Aesthetic Sensibility. To what extent do students appreciate their natural and physical environment?

Domains of information: discriminating appreciation for the fine arts, literature, natural beauty

Primary sources of information: student inventory, student interviews

Secondary sources of information: senior essay, alumni interviews

TABLE 6

Major/Specialization Outcomes

A. Cognitive Knowledge

To what extent do students have basic knowledge in their major or specialization?

Primary Sources of Information: grade point distributions, Graduate Record Examinations, pre-professional exams

Secondary Sources of Information: licensing examinations, graduate school admission examinations, senior capstone courses, senior theses, accreditation field examinations

B. Noncognitive Knowledge and Skills

To what extent does the student exhibit noncognitive skills and personal attributes important to future performance in the field or profession?

Primary Sources of Information: behavioral simulations, employer surveys, work study evaluations

TABLE 7

Student Development Outcomes

A. Personal Growth and Development

1. Identity Formation. Do students display a unified self-concept based on personal beliefs that is neither excessively conforming nor experimental?

Domains of information: confidence, self-understanding, unified self-concept, sense of direction, reflectiveness, intrinsic motivation

Primary sources of information: student surveys (including CIRP*, CSE*), alumni survey, student interviews

Secondary sources of information: faculty survey, student observation, employer survey

2. Ethical Development. Do students exhibit moral reasoning that integrates both external standards and internal beliefs?

Domains of information: integration of personal opinion and experience with external influences, not dogmatic or relativistic, capacity to critically analyze both internal and external factors

Primary sources of information: student surveys (including CIRP*, CSE*), alumni survey, student interviews

Secondary sources of information: faculty survey, student observation, employer survey

3. Development of Humane Values and Capacity for Commitment. Do students' values, attitudes, and beliefs reflect a broad understanding of social issues and a concern for human welfare?

Domains of information: empathy, compassion, trust, non-exploitativeness, respect for the dignity of others

Primary sources of information: student surveys (including CIRP*, CSE*), alumni survey, student interviews

Secondary sources of information: faculty survey, student observation, employer survey

4. Physical Health. Are students aware of the consequences of various health-related activities, and do they act responsibly toward wellness?

TABLE 7, continued

Domains of information: eating habits, drug use and abuse, exercise patterns, sexual activity, relaxation and leisure activities, awareness of unhealthful practices and their consequences, sense of personal responsibility for healthful behaviors

Primary sources of information: student surveys (including CIRP*, CSE*), alumni survey, student interviews, Student Health Service

Secondary sources of information: faculty survey, student observation, employer survey

B. Social Responsibility

1. Interpersonal Skills. Do the social interactions of students show understanding and appreciation of mutual satisfaction beyond being self-centered or role-dominated?

Domains of information: capacity to develop and nurture relationships and to interact effectively within group situations, sense of trust, openness and sharing with others, non-manipulative, appreciation of the intrinsic value of reciprocity in relationships

Primary sources of information: student surveys (including CIRP*, CSE*), alumni survey, student interviews

Secondary sources of information: faculty survey, student observation, employer survey

2. Civic Responsibility. Do students display an anthropocentric (rather than ethnocentric) cultural view and a sense of civic responsibility?

Domains of information: appreciation and acceptance of other cultures, sense of belonging to and participation in a community and culture, social consciousness

Primary sources of information: student surveys (including CIRP*, CSE*), alumni survey, student interviews

Secondary sources of information: faculty survey, student observation, employer survey

C. Career Preparation

1. Career Satisfaction. Are students' career choices both personally satisfying and culturally valuable?

TABLE 7, continued

Domains of information: career choice, type of job, where employed, job satisfaction, when employed

Primary sources of information: alumni and employer surveys

2. Preparedness. Do students have the backgrounds and skills to successfully pursue their chosen careers?

Domains of information: knowledge of area (see outcomes for major/specialization), ability to choose suitable major field, skill at seeking employment

Primary sources of information: alumni and employer surveys, student records*

Secondary sources of information: student surveys and interviews

*existing information

information on the institutional environment. The Task Force recommends that the Center formally address Stage III no later than January 1, 1989.

Stage IV: Assessment of Value-Added Student Learning and Development

As discussed in the first part of this report, the value-added approach, while providing an important measure of student learning and development during the undergraduate years, is complicated by the demands of time, exposure, and difficulties of interpretation. However, with careful planning, the assessment plan can overcome these complications to gain the valuable insights this approach allows.

Judicious use of entering student data, questionnaires, and surveys presently administered such as the Cooperative Institutional Research Project (CIRP) and the College Student Experience Questionnaire (CSEQ) could provide entry benchmarks for later comparison. Additionally, the Upper Division Writing Proficiency Examination (UDWPE) and placement or qualifying examinations required for entry into majors or specializations may also be used. In addition, the Task Force recommends that the Center consider the following:

1. The administration of a standardized test such as the ACT COMP to a stratified random sample of students at different points in time to assess change during the undergraduate years. Ideally, the test will be administered to a sample of entering freshmen, rising juniors and graduating seniors.

2. The inclusion in the value-added design of a longitudinal record of student work, experiences, and activities such as a student

portfolio, diary, or journal of activities. Such a record provides to both the student and the institution a record of change as the student progresses through the University.

3. The use of part-time observers as ethnographers to observe and interview students in diverse settings such as the Student Union, the library, and at social, recreational, sporting and cultural events. Observers will try to evaluate the relationships between formal education and student culture. Developmental case studies would portray the effects of campus life on students.

Although the Center will be gathering information and conducting activities during previous stages which will contribute to the value-added stage, we recommend that the Center formally incorporate the value-added approach in the overall design by July 1, 1989.

Stage V: Studies of Institutional Influences
on Student Learning

Accurate assessment of institutional influences on student learning depends upon successful development and implementation of the preceding stages: refined definition and development of measures of outcomes; accurate assessment of the elements of the institutional environment; and, perhaps most directly related to institutional impact, the assessment of value-added student learning. While useful inferences will be drawn regarding the institutional influence during each stage, it must be underscored that these will be just inferences. At the same time, the foundation provided by the previous stages will allow the Center in Stage V to conduct impact studies which attempt to systematically link the environment with student learning.

A Concluding Note

Our final recommendation is threefold: any plan for assessment should be conducted with due regard for the tentativeness of its conclusions; it should respect the privacy and rights of the students who are its subjects; and it should be true to its ultimate purpose, which is the continuing effort to improve undergraduate education at the University of Arizona.

APPENDIX A

SAMPLE STUDENT DATA RECORD

Demographic Data

High School Standing
High School Grade Point Average
ACT Scores
Gender
Age
Geographic Origin
Ethnicity
Major
Credit Hours
Advisor
Degree

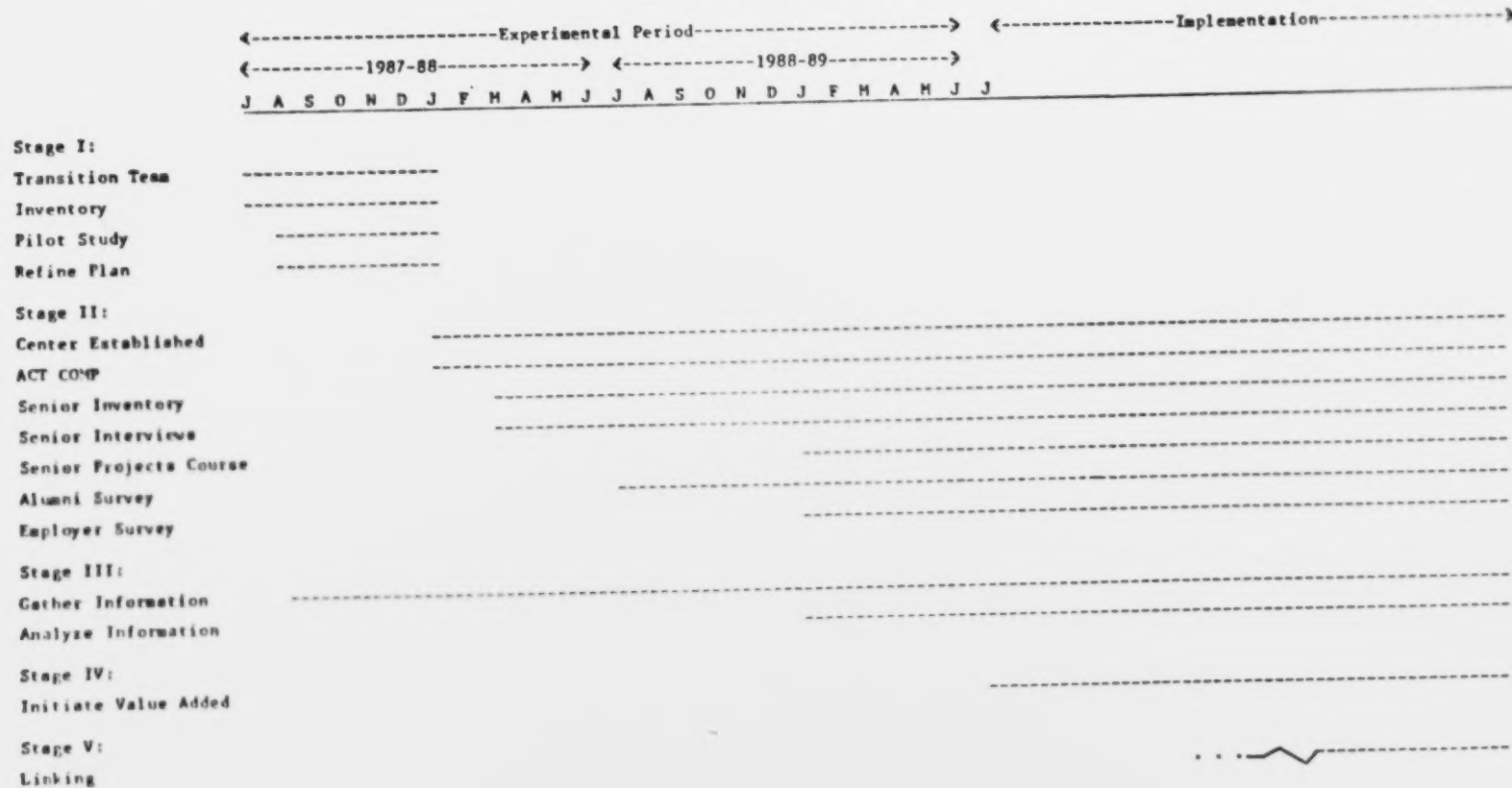
Testing Data

ACT Scores
Placement Test Results
Upper Division Writing Exam Results
ACT COMP
Qualifying Test Results
Senior Examination by major
GRE
Professional/Certification Exam Results

Survey Data

CIRP
CSEQ
Ethnographic Reports
Senior Interview
Senior Inventory
Alumni Survey
Withdrawing Student Survey

APPENDIX B
TIME LINE FOR IMPLEMENTATION



APPENDIX C
STUDENT DATA RECORD FLOW

	Pre-Enrollment	Freshman	Sophomore	Junior	Senior	Graduate
Tests	ACT SAT	ACT COMP Placement		UDFWE ACT COMP Qualifying Major	Essay Portfolio Senior Projects	GRE Professional/ Certification
Surveys		CIRP CSEQ			Inventory Checklist	Alumni Employer
Demographics	H.S. GPA H.S. Standing	Major GPA Gender Age Ethnicity Geographic Origin Credit Hours Advisor			College Rank Major Degree Honors GPA Extracurricular Activities	Placement Graduate Schools Employer
Interviews		Ethnographic	----->			
					Senior Interview	

REFERENCES

- Association of American Colleges. Integrity in the College Curriculum: A Report to the Academic Community. Washington, DC: Association of American Colleges, 1985.
- Astin, Alexander W. "When Does a College Deserve to be Called 'High Quality?'" Current Issues in Higher Education: Improving Teaching and Institutional Quality 2 (1980), pp. 1-9.
- Boyer, Ernest L. College: The Undergraduate Experience in America. New York: Harper & Row, 1987.
- Conrad, Clifton F. and Wilson, Richard F. Academic Program Review: Institutional Approaches, Expectations, and Controversies. ASHE-ERIC/Higher Education Research Report No. 5. Washington, DC: Association for the Study of Higher Education, 1985.
- Conrad, Clifton F. and Pratt, Anne M. "Designing for Quality." Journal of Higher Education 56 (November/December, 1985), pp. 601-622.
- Education Commission of the States. Transforming the State Role in Undergraduate Education: Time for a Different View. Denver, Colorado: ECS, 1986.
- Kuh, George D. Indices of Quality in the Undergraduate Experience. AAHE-ERIC/Higher Education Research Report No. 4. Washington, DC: Association for the Study of Higher Education, 1981.
- National Institute of Education. Involvement in Learning. Washington, DC: National Institute of Education, 1984.
- Newman, John Henry Cardinal. The Idea of a University. Garden City, New York: Image Books, 1959.
- Pirsig, Robert M. Zen and the Art of Motorcycle Maintenance. New York: William Morrow, 1974.